

CLAIMS

What is claimed is:

1. A tractor mechanism for automatically moving a seaming iron along a
5 carpet seam, the tractor mechanism comprising:
a frame configured to retain a seaming iron in a position suitable for
seaming adjacent pieces of carpet along a carpet seam; and
a motor connected to the frame, whereby driving the motor at a
predetermined speed and direction causes the frame to advance along the carpet seam
10 at a rate suitable for activating a seaming tape under the carpet seam when the frame is
retaining an operating seaming iron.
2. The tractor mechanism of Claim 1, further comprising at least one drive
wheel connected to the motor.
3. The tractor mechanism of Claim 2, wherein the at least one drive wheel
15 comprises a wheel configured to engage a tufted carpet surface.
4. The tractor mechanism of Claim 1, further comprising a seaming iron
retained by the frame.
5. The tractor mechanism of Claim 4, further comprising a detachable
connection between the frame and the seaming iron.
- 20 6. The tractor mechanism of Claim 4, further comprising a detachable
electrical connector disposed to connect the seaming iron to a control unit for the motor.
7. The tractor mechanism of Claim 4, wherein the frame comprises an
integrated housing for the seaming iron and the motor.
8. The tractor mechanism of Claim 4, wherein the seaming iron is selected
25 from the group consisting of an induction heating tool and a resistive heating tool.

9. The tractor mechanism of Claim 1, wherein the frame comprises a bracket for attaching to a flexible line.

10. The tractor mechanism of Claim 1, further comprising a reel for winding a flexible line connected to the motor, whereby the frame may be pulled along the carpet
5 seam by the line.

11. The tractor mechanism of Claim 1, wherein the frame comprises a tray configured to receive a seaming iron.

12. The tractor mechanism of Claim 1, further comprising a seaming board for placing underneath the carpet seam connected to the motor, whereby driving the motor
10 at a predetermined speed and direction causes the seaming board to advance along the carpet seam at the rate of the frame.

13. The tractor mechanism of Claim 1, wherein the motor is configured to operate at a fixed speed.

14. The tractor mechanism of Claim 1, wherein the motor is configured to
15 operate at an adjustable speed determined from a user input.

15. The tractor mechanism of Claim 1, further comprising a motor controller connected to control the motor.

16. The tractor mechanism of Claim 14, further comprising a temperature sensor connected to the motor controller, whereby the motor is controlled to operate at
20 a speed determined from a temperature measured by the temperature sensor.

17. The tractor mechanism of Claim 14, further comprising an indicator of power supplied to a heating element of a seaming iron, wherein the motor controller is connected to determine a value of the indicator, whereby the motor is controlled to operate at a speed determined from the value of the indicator.

25 18. The tractor mechanism of Claim 1, further comprising a seaming weight connected to the motor, whereby driving the motor at a predetermined speed and

direction causes the seaming board to advance along the carpet seam at the rate of the frame.

19. The tractor mechanism of Claim 1, further comprising an alignment sensor connected to control a steering mechanism for the frame.

5 20. The tractor mechanism of Claim 19, wherein the alignment sensor comprises a protrusion projecting from the tractor mechanism between the adjacent pieces of carpet at the seam.

21. The tractor mechanism of Claim 19, wherein the alignment sensor comprises a beam detector in combination with a beam source, the beam source
10 selected from the group consisting of an ultrasound source, a radio source, an ultraviolet source, a visible light source, an infrared source, and a laser source.

22. The tractor mechanism of Claim 19, wherein the alignment sensor is configured to sense at least a component of the seaming tape.

23. A method for seaming adjacent pieces of carpet, the method comprising:
15 positioning a length of heat-activated seaming tape along and under a seam line defined by opposing edges of adjacent pieces of carpet;
 positioning a seaming iron over the seam line, the seaming iron having a heat-activating element disposed to activate a section of adhesive tape; and
 automatically driving the seaming iron at a predetermined rate along the
20 seam line by a motor, while the seaming iron is operating.

24. The method of claim 23, wherein the automatically driving step further comprises driving the seaming iron at a constant speed.

25. The method of claim 23, wherein the automatically driving step further comprises driving the seaming iron at an adjustable speed.

25 26. The method of claim 23, further comprising automatically guiding the seaming iron along the seam line.